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## BOTANY.

PROFESSOR BABINGTON ON ANACHARIS. — The editors of the NATURALIST will do a favor by reprinting Professor Babington's short article, contributed to the April number of the "Journal of Botany," in order that the attention of our botanists may be called to it during the coming summer. It may be that we have two water-weeds, as Babington and Planchon supposed; one diœcious, the other hermaphrodite. In that case the characters of the two are commixed in my manual. That plants with "hermaphrodite flowers really do exist in the United States" is certain. Dr. Torrey's "Flora of the State of New York" describes them, and I can vouch that the description was taken from living plants. He says "the stamens are mostly three, but varying to four, five or six, or more." As to the male flowers, of the peculiar structure and economy described by Nuttall, so far as I know these have been since collected only by Dr. Engelmann at St. Louis, who gave specimens both to Dr. Torrey and myself. Dr. Torrey states that he describes these specimens. It is to be hoped that Dr. Engelmann may be able to find this sterile-flowering plant again; and that all our botanists will examine the plants they meet with and preserve specimens of any different kinds or sexes of flowers they may detect.

Professor Babington appears to have overlooked Caspary's elaborate papers on these plants. As to the name, now that Adanson's genus is *Elodes*, there is nothing to prevent the restoration of *Elodea*.—A. GRAY.

ON ANACHARIS.—There is far from being a concurrence of opinion concerning the proper generic name of the plant called *Anacharis Alsinastrum*. In our last published Flora (Hook. Stud. Fl. p. 350) the name of *Anacharis* is used, as was done by Bab. and Planch. (Ann. Nat. Hist. ser. 2, vol. i. p. 83, and Ann. Sc. Nat. ser. 3, t. xi. p. 74); but in the next preceding British Flora (Benth. Handb. ed. 1, 499; ed. 2, 447) the generic name *Elodea* is adopted. Syme (Eng. Bot. ix. 80) follows Bentham, but in a note expresses the opinion that *Hydrilla* is the proper name. Asa Gray named the North American plant *Udora* in the first edition of his 'Botany of the Northern States' (p. 462), but in ed. 5 (p. 495) he has adopted *Anacharis* as the proper name.

Richard defined genera with each of the names *Elodea*, *Anacha-*

*ris*, and *Hydrilla* in 1812 (Mem. Inst. 1811, pt. 2, p. 1), and had previously described the genus *Elodea* in 1803 (Mich. Fl. Bor. Amer. i. 20). In the latter work he refers *E. guyanensis* to that genus, as well as E. *canadensis*, and places them as hermaphrodite plants in the Linnæan Class and Order *Triandria Monogynia*. In both of these places he states expressly that *Elodea* has hermaphrodite flowers. In the Mem. Inst. he says that *Anacharis* and *Hydrilla* are diœcious: indeed, he did not know the female flowers of *Anacharis*. Humboldt and Bonpland (Pl. Eqinoct. ii. 150) place their E. *granatensis* in the same Class and Order, and state that it has the same structure as E. *guyanensis* Rich. But Richard describes his E. *canadensis* as hermaphrodite, in which he is wrong, if his plant is that now so named from the United States and Canada; and his *E. guyanensis* and the *E. granatensis* of Humboldt as also hermaphrodite, and in that he is correct. It is remarkable that Richard, although referring to *E guyanensis* in Michaux's work in 1803 (but by name only), does not seem to have published any description of it until the appearance of his paper (Mem. Inst.), which was issued in 1814, but communicated to the Institute in 1812. Pursh called the Canadian plant *Serpicula occidentalis* in 1814 (El. Amer. Septen. i. 33), and expressly states that the flowers are hermaphrodite. Nuttall called the same plant *Udora* (Gen. ii. 242) in 1818. He describes the *U. canadensis* as so decidedly unisexual, that the male flower is " migratory, breaking off connection usually with the parent plant; it instantly expands to the light, the anthers also burst with elasticity, and the granular pollen vaguely floats upon the surface of the water." Asa Gray gives a similar account of the male flowers of his *Anacharis*. He says, " The staminate flowers (which are rarely seen) commonly break off, as in *Vallisneria*, and float on the surface, where they expand and shed their pollen around the stigmas of the fertile flowers."

It appears from this that there are two series of plants closely resembling each other in appearance, of which one series has perfect triandrous flowers, and the other has incomplete diœcious flowers, of which the males are nearly or quite sessile, and have the curious habit of becoming detached when the pollen is ripe, and floating freely about on the surface of the water, and shedding their pollen there. Such a difference of structure and mode of fertilization has seemed to many, if not most, botanists as quite sufficient to place the plants in different genera, for here the male are of quite a distinct structure from the female flowers, and the difficulty attending the propagation of the plant is met by the power which each node of the stem possesses of producing a new plant if detached from the rest.

But even if it be considered that the diœcious structure of *Anacharis* and *Hydrilla* is not sufficient to separate them from the hermaphrodite *Elodea* of South America (*Apalanthe*, Planch.), still the expediency of retaining *Elodea* as the genuine name is very doubtful, as the sec. *Elodea* of *Hypericum* hasbeen separated as a genus by the name of *Elodea* by Pursh, Spach, Endlicher, and others, and as there was manifestly a mistake in Richard's original definition of his *Elodea* as applied to the species of *Anacharis* (if they were intended to be included in it), although that definition does suit the South American species described by him and by Humboldt. It appears, therefore, to me that we had better retain *Anacharis* as the name of the plant well known in North America, and, unfortunately, now too well known in England.

Doubtless Richard was led to suppose that the Canadian plant is hermaphrodite from its very close resemblance to his *E. guyanensis*, which he had seen alive and then ascertained its hermaphrodite structure. The barren filaments found in the female flowers of the Canadian plant would lead him to that conclusion in the absence of the proper male flowers. I have not seen the male flowers of my *Anacharis Alsinastrum* (of which apparently only the female plant is in Europe), and A. Gray does not tell us if they are sessile, as those of *Hydrilla* are represented on Richard's plate, or shortly stalked, as in his figure of *Anacharis*, and no other author has, to my knowledge, given a plate of the male plants of either *Hydrilla* or *Anacharis*.

*Hydrilla* seems quite distinct by the subglobose spathe of its sessile male flowers; the spathe of the male flowers of *Anacharis* being figured and described by Richard as tubular and bifid, and described by A. Gray as sessile, tubular, and 2-cleft. Richard also says that the male flowers of *Anacharis* are stalked and so figures them, but A. Gray does not say anything on that point.

Mr. Syme gives as his opinion that "there are no characters of sufficient importance to separate the genera *Hydrilla*, *Elodea*, and *Anacharis*," but in that opinion I cannot concur. Dr. Hooker states that the staminodes of the female flowers of *Anacharis* are sometimes antheriferous. I have examined very many flowers in the hope of finding anthers, but without success, and others have been equally unsuccessful. Hooker is apparently copying Syme, who derived (?) the statement from A. Gray, in whose book it seems to result from his considering *Elodea canadensis*, Michx., as certainly the same plant, and if the same plant as certainly correctly referred to the same genus as *E. guyanensis*, *i. e.* of hermaphrodite structure. It is much to be desired that American botanists should carefully investigate and determine if hermaphrodite flowers ever really do exist in the United States or Canada, for, apparently, it is of no use hunting for them in England, where all the plants seem to have sprung from the division of a single sprig originally introduced. Probably the plant found in Scotland, which is also female, originated in the same manner.

ANOTHER DOUBLE WILD FLOWER. In July of last year (1871) while collecting in the region of perpetual snow on James' Peak, I found and preserved a flower of *Trollius laxus* in which the stamens and most of the pistils were transformed into petals. These petals were of the same color as the sepals, but shorter, though broad, and in other respects finely developed. The plant is abundant in the high mountains of this latitude.—Rev. E. L. GREENE, *Greeley*, *Colorado Territory*.

## ZOOLOGY.

THE LAST OF "BONASA JOBSII."—The immediate witnesses of the sudden appearance and prompt destruction of the above mentioned bird, greatly regret that a page of the NATURALIST should be occupied in recording its career; but since this is the case (see issue of March, p. 172) and since some of the statements of your correspondent require correction, we hope that a final shot may be permitted; and first since neither the NATURALIST nor its correspondent appears to have seen the following communication in which the describer of "Bonasa Jobsii" cheerfully resigned his first-born and since it contains some instructive remarks from high ornithological authorities, we request its insertion here.

"I beg the privilege of reading the views of two distinguished ornithologists, Professor S. F. Baird and Dr. Elliott Coues, upon the article published in THE ERA of December 8th, entitled "Bonasa Jobsii."

Professor Baird writes: 'Your letter of the 11th inst. with the accompanying description of the supposed new species of grouse has just been received, and after a careful examination of the account I have no hesitation in pronouncing your bird to be one of the numerous variations assumed by the common ruffed grouse. A difference in shape, or color of the plumage, or a discrepancy in an observed measure, or an anatomical peculiarity from a description based upon a dried specimen, is of comparatively little moment. The number of tail-feathers as a criterion is equally illusive, when the normal average of twelve is exceeded. When I published my work on the Birds of North America I was in what might be called the analytical stage of natural history development. My present condition is synthetical. I take more pains now to subordinate forms, once considered specific, than I do to establish them as such. I admit now but one species of *Bonasa* in the United States, with, however, an Eastern race, a Middle and a Western, these diversified by differences of plumage and slight variations of proportions which, however, are of no great